

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences
Department of Interior and Related Agencies Appropriations
Superfund-Related Activities

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NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences
Department of Interior and Related Agencies Appropriations
Superfund – Related Activities

For necessary expenses for the National Institute of Environmental Health Sciences in carrying out activities set forth in section 311(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, and section 126(g) of the Superfund Amendments and Reauthorization Act of 1986, \$78,434,000.

Supplementary Exhibit

**Comparison of Proposed FY 2008 Appropriation Language to
Most Recently Enacted Full-Year Appropriations**

NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences
Department of Interior and Related Agencies Appropriations
Superfund – Related Activities

For carrying out Section 311(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, and Section 126(g) of the Superfund Amendments and Reauthorization Act of 1986, [~~\$80,289,000~~]~~\$80,289,000~~\$78,434,000.

(Department of the Interior, Environment and Related Agencies Appropriations Act, 2006)

National Institutes of Health

National Institute of Environmental Health Sciences
 Department of Interior and Related Agencies Appropriations
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Amounts Available for Obligation

Source of Funding	FY 2006 Actual	FY 2007 Continuing Resolution	FY 2008 Estimate
Appropriation	\$80,289,000	\$79,108,000	\$78,434,000
Enacted Rescissions	1,181,000	---	---
Subtotal, Adjusted Appropriation	79,108,000	79,108,000	78,434,000
Subtotal, adjusted budget authority	79,108,000	79,108,000	78,434,000
Unobligated balance lapsing	7,000	---	---
Total obligations	79,101,000	79,108,000	78,434,000

Justification

National Institute of Environmental Health Sciences Department of Interior and Related Agencies Superfund - Related Activities

Authorizing Legislation: Section 311(a) of the Comprehensive Environmental, Response, Compensation, and Liability Act of 1980, as amended, and Section 126(g) of the Superfund Amendments and Reauthorization Act of 1986

FY 2006 Actual	FY 2007 Continuing Resolution	FY 2008 Estimate	Increase or Decrease
\$79,108,000	\$79,108,000	\$78,434,000	-\$674,000

FTEs are included with the regular NIEHS appropriation.

INTRODUCTION

In May 2006, the National Institute of Environmental Health Sciences (NIEHS) released its 2006-2011 Strategic Plan: New Frontiers in Environmental Sciences and Human Health. An underlying principle of the Strategic Plan is the need to understand the complex relationship between environmental risk factors and human biology within affected individuals and populations, and to use this understanding to help prevent illness, reduce disease and promote health. Complementary to this principle are the missions of the two NIEHS Superfund programs: the Superfund Basic Research and Training Program (SBRP) and the Worker Education and Training Program (WETP). These programs, created under the Superfund Amendments and Reauthorization Act (SARA) of 1986, support research and professional development with the goal of preventing illness, reducing disease, and promoting public health. The missions of these two programs are:

Superfund Basic Research Program: Develop a basic science foundation that supports decision-making in risk assessment and in the cleanup of hazardous waste sites.

Worker Education and Training Program: Train workers in safe practices in remediating hazardous waste sites and in responding to emergencies involving hazardous substances.

The Superfund programs utilize the successful NIH peer review structure to effectively administer and manage the grants and cooperative agreements that conduct vital research and training activities. In 2006, NIEHS initiated a fundamental change to the SBRP by incorporating individual investigator research (R01s) in the program's portfolio. Introducing this mechanism to the long-standing team-based multi-project mechanism

provides an ideal balance between increased research flexibility/responsiveness and integrated, collaborative research. These mechanisms, when combined with the Small Business Innovative Research (SBIR) and Small Business Technology and Innovative Research (STTR) programs, enable the SBRP to provide a diverse research base that (1) supports the large, multi-factorial research to address the problems that plague the nation's hazardous waste sites, (2) promotes the demonstration and commercialization of innovative remediation technologies, and (3) provides a means to support shorter-term research projects focused on emerging issues. This allows the SBRP to address the high priority research needs of the national U.S. Environmental Protection Agency (EPA) Superfund Program and strengthen its efforts to protect human health and the environment. Currently, the SBRP supports 15 team-based, multi-project grants, including over 188 different research projects and cores, plus eight new individual investigator research grants. The SBRP also funds eight SBIR/STTR grants.

The WETP, using a cooperative agreement mechanism, supports 18 primary worker-training grantees, in conjunction with over 80 collaborating institutions. The WETP also currently supports six SBIR grants.

SUPERFUND BASIC RESEARCH PROGRAM

New Research Opportunities

The incorporation of individual investigator research grants into the SBRP portfolio positions the program to be more responsive to emerging environmental health needs that were not being met by the SBRP's multi-project grants. In 2006, eight individual investigator grants were awarded in the broad areas of developing novel methods for environmental exposure assessment and site characterization, studying bioavailability, developing remediation/characterization methodologies of contaminants in sediments and developing innovative approaches for the remediation of mixtures. In order to expand this component of the program, on November 1, 2006, the SBRP published a Funding Opportunity Announcement (FOA) entitled "[Innovative Approaches to Remediation of Recalcitrant Hazardous Substances in Sediments](#)." This topic was selected to fill an unmet need in the remediation of hazardous waste sites, as identified by EPA and the Department of Defense (DOD). Under this FOA, the SBRP intends to commit a total of \$2 million dollars to fund six to eight grants with up to three years of support. These grants will be awarded in Fiscal Years 2007 and 2008.

A Step Closer to Understanding Inflammation

Background: Inflammation is now recognized as an important process involved in many diseases, including cancer, atherosclerosis, cardiovascular diseases, diabetes, arthritis, sepsis, and chronic lung disease. Understanding the biological pathways involved in inflammation will *point the way to improving the knowledge base regarding the biological processes involved in common chronic disease.* One metabolic pathway known to be involved in inflammation is the arachidonic acid cascade. SBRP-funded investigators at the University of California at Davis have recently determined how a key enzyme, epoxide hydrolase (EH), interacts with the arachidonic acid cascade and thereby affects inflammation.

Advance: In the early days of this research, EH was found to have a role in the detoxification of exogenous compounds and, accordingly, it was not surprising to find this enzyme in the liver, which is the site of detoxification. Unexpectedly, EH was also found in high concentrations in the vascular endothelium and other tissues, where it affects vasodilation and inflammation.

Further investigation into how EH alters metabolism and influences the arachidonic acid cascade -- a metabolic pathway involved in numerous biological processes, including the regulation of inflammation -- determined that the production of inflammatory compounds could be shifted to the production of anti-inflammatory compounds by preserving arachidonic acid and its metabolites in the epoxide form. It was also found that soluble EH (sEH) inhibitors dramatically improved an organism's response to bacterial endotoxins, which typically elicit an inflammatory response by helping to maintain blood pressure at normal levels, enhancing airway response by down-regulating inflammation and acting to reduce pain. Most recently, the study of the therapeutic benefits of combining nonsteroidal anti-inflammatory drugs (i.e., the class of drugs that inhibit the arachidonic pathways that lead to pain and inflammation) and sEH inhibitors demonstrated a synergistic effect between nonsteroidal anti-inflammatory drugs and sEH inhibitors in reducing pain and inflammation, while decreasing the side effects of the nonsteroidal anti-inflammatory drugs.

Implications: On one hand, EH is critical to the body's defense against many toxic substances found in the environment. It is involved in metabolic pathways that transform a wide range of lipophilic (fat-soluble) chemicals to compounds with increased water solubility, which expedites the clearance of the compound from the body and reduces the chances for toxic effects. However, an unanticipated outcome of the study of the biochemistry of the EH is the discovery that EH activates endogenous molecules into species that lead to inflammation. This knowledge has led to the exploration of the potential of sEH inhibitors as therapeutic intervention of inflammation. *These new insights of the role of EH in influencing important biological processes is leading to improved approaches for the intervention, prevention and treatment of disease.*

Publications

Kara R. Schmelzer, Bora Inceoglu, Lukas Kubala, In-Hae Kim, Steven L. Jinks, Jason P. Eiserich, and Bruce D. Hammock. 2006. Enhancement of antinociception by coadministration of nonsteroidal anti-inflammatory. PNAS 103;13646-13651. (doi:10.1073/pnas.0605908103)

Morisseau, Christophe and Bruce D. Hammock. 2005. Epoxide hydrolases: mechanisms, inhibitor designs, and biological roles. *Annual Review of Pharmacology and Toxicology*. 45:311-333. (doi:10.1146/annurev.pharmtox.45.120403.095920)

Science Advances

The cross-discipline research strategy established by the SBRP is improving the state of knowledge regarding disease etiology, risk, and intervention. The SBRP also includes a research translation component to increase utilization of SBRP-funded scientific findings by the professionals charged with making decisions related to Superfund and other hazardous waste sites. The following examples highlight a few of the recent research advances produced by the SBRP.

NIEHS SBRP investigators determine inter-individual variability in risk and expand community-linked research:

Example: Exposure to arsenic has been associated with the development of various cancers (e.g., skin, bladder, kidney and lung), diabetes, peripheral neuropathy, and cardiovascular diseases. Once inside the human body, arsenic can be metabolized into at least five different chemical forms - each with very different toxic potencies and biological targets; however, this metabolic profile is not uniform among all people. *Understanding individual variation of arsenic metabolism will serve as a probe for understanding the processes of chronic diseases.* SBRP-funded researchers at the University of Arizona performed a genetic study to screen for the effects of genotypes (e.g., the genetic identity of individuals) on arsenic metabolism by measuring arsenic metabolite levels in urine. Three genes involved in arsenic metabolism were evaluated in order to determine whether person-to-person genetic variation is associated with how arsenic is metabolized. While an association between genotype and arsenic metabolites was observed for the entire study population, on stratification of the data by age of subjects, this relationship was found only in children. Additional studies revealed that children with a specific genotype appear to have increased susceptibility to arsenic toxicity because their bodies metabolize and accumulate a toxic form of arsenic. These findings reinforce the importance of genotype in modifying the toxicity of arsenic, but also reveal a window of vulnerability, i.e., childhood, for exposure to arsenic. *This study provides insights on human disease by using the environmental exposure to identify genetic targets of susceptibility and intervention.*

SBIR investigators design effective and cost-saving remediation strategies:

Example: The cost to remediate hazardous substances at abandoned waste sites is estimated at billions of dollars annually and is projected to continue to rise over the next

several decades. Photocatalysis, a process that uses light to breakdown contaminants, is an emerging technology with potential to reduce treatment costs of chlorinated organics. Attempts to use photocatalysis to degrade trichloroethylene (TCE), a suspected carcinogen, created other toxic byproducts such as phosgene and chloroform. With funding from an SBRP SBIR grant, scientists from KSE, Inc. (Amherst, MA) conducted research to optimize the photocatalytic conditions for the treatment of TCE by testing various combinations of catalysts. The finalized process achieved destruction efficiencies comparable to other available technologies but without the production of detectable chloroform or phosgene in the exiting air stream. The pilot TCE demonstration showed photocatalysis offers up to a 20-fold advantage in capital cost and up to a 40-fold advantage in operating costs relative to existing technologies. *This new technology effectively degrades environmental contaminants faster, cheaper and safer than those currently available and is a promising advance for mitigating environmental exposures.*

NIEHS SBRP investigators employ cost-effective clean-up strategies for drinking water:

Example: Methyl tert-butyl ether (MTBE) has been used as a gasoline additive in the United States since 1979 to increase octane ratings and meet Clean Air Act Amendments requirements. Its appearance in groundwater in the mid-1990s led to human health concerns, which resulted in 25 states banning the substance. MTBE cleanup costs are now estimated in the tens of billions of dollars. Although this compound is relatively resistant to biological degradation, SBRP researchers at the University of California at Davis isolated a strain of bacteria, *Methylibium petroleiphilum* (PM-1), that can degrade MTBE. Genetic tests were developed to determine the presence of PM-1 in water treatment systems, and, after extensive sampling, found that the bacteria are widespread. However, the strains are typically present in low numbers. In order to stimulate the growth of the bacteria, bioreactors that either stimulate or augment the production of PM-1, thereby enhancing the biodegradation of MTBE, were designed. These bioreactors have been successfully used in conjunction with pump and treat methods and have been deployed at over 30 sites, achieving substantial cost savings for site clean-ups throughout the country. *This innovative remediation strategy provides important insights in how to reduce exposure to a widespread environmental contaminant.*

NIEHS SBRP doctoral student researches the effect of diet on contaminant toxicity:

Example: Little is known about the interaction of diet and the toxicity of Superfund contaminants like polychlorinated biphenyls (PCBs). Research from the University of Kentucky identified specific dietary fatty acids that increase PCB toxicity in vascular endothelial cells (the cells that line the inside of blood vessels). In this study, a doctoral student explored the hypothesis that different types of dietary polyunsaturated fatty acids can selectively modify PCB-induced vascular endothelial cell activation, a critical event in the early pathology of atherosclerosis. This study demonstrated that linoleic acid (the parent omega-6 fatty acid abundant in many vegetable oils) can increase PCB-induced endothelial cell activation. In contrast, the research showed that linolenic acid (the parent omega-3 fatty acid abundant in soybean or flax seed oil) can decrease PCB-induced

endothelial cell activation. Similar protective properties were observed with omega-3 fatty acids abundant in fish oil. In addition, selected omega-6 fatty acids were found to increase oxidative stress (damage to proteins, membranes and genes) induced by PCBs. Interestingly, increasing the relative proportions of omega-3 to omega-6 fatty acids reduced the levels of PCB-induced inflammation of vascular cells. The relationship among nutrition, exposure to environmental toxins and disease suggests a possible dietary intervention that prevents end-stage disease. *This research demonstrates that by studying environmental exposure, insight can be gained about basic biology and the mechanistic events leading to clinical disease.*

Other Areas of Interest

The SBRP continues to seek new ways to optimize its ability to respond to emerging environmental health needs. This year, in addition to the incorporation of the new R01 mechanism in the program's portfolio (described above), the SBRP proactively coordinated efforts among other federal agencies that have similar missions, e.g., to protect human health and the environment. Partnership with the EPA resulted in three successful conferences which brought together remediation professionals, academic experts, and regulators to create a forum for tackling issues such as: arsenic in the environment, combining strategies for remediating chlorinated compounds, and applying hazardous waste remediation strategies to agricultural waste issues. In addition, the SBRP participated in launching a multi-agency working group to attain effective remediation research coordination. This newly formed group, comprising staff from NIEHS, EPA, the National Science Foundation (NSF), the Department of Energy (DOE) and the DOD, is discussing each agency's research agendas and future directions with regard to remediation research to ensure that efforts are complementary and not duplicative. This government consortium recently formed a groundwater remediation focus group to review research programs on the fate and transport and remediation research of groundwater contaminants.

WORKER EDUCATION AND TRAINING PROGRAM

Within hours of a national disaster, an experienced network of worker safety and health experts, trainers, and support staff are mobilized to protect and assist the public. This network gained much of its experience during the response to the attacks on the World Trade Center, the Oklahoma City bombing, anthrax terrorist attacks and more recently, Hurricane Katrina. Through the evaluation of the lessons they have learned, this network developed mechanisms for getting needed safety and health resources into the field: teams of trainers and subject matter experts, printed training materials, on-line electronic learning tools, personal protective equipment and other training supplies, and even useful 'extras' such as safety awareness "podcasts" - audio training tips available through easy download to trainers in the field. This network is the WETP and its 18 grantee organizations.

The WETP funds training through competitively awarded cooperative agreements. The recipients are non-profit organizations with demonstrated access to appropriate worker

populations and experience in implementing and operating worker health and safety education training programs. In accordance with the NIEHS Strategic Plan, and as direct providers of safety and health training, WETP awardees have built partnerships with academia, industry and community organizations to improve human health by improving the health of frontline environmental workers. The training awards are part of a number of program areas including:

- **Hazardous Waste Worker Training Program (HWWTP)** – provides model occupational safety and health training for workers who are or may be engaged in activities related to hazardous waste removal or containment or chemical emergency response. This year, 111,271 workers were trained in 6,652 courses, representing 1,153,463 contact hours of training. Since 1988, over 1.5 million workers have received training through this program.

- **Hazmat Disaster Preparedness Training Program (HDPTP)** - enhances the safety and health training of current hazardous materials workers and chemical responders. This program, created in 2004, is designed to train skilled response personnel, develop materials, and deliver training to weapons of mass destruction response workers, and augment prevention and preparedness efforts in a wide variety of high risk settings. In its first year, 6,410 workers were trained in 510 courses representing 80,189 contact hours of training.

Also, under the HDPTP, the WETP provided safety and health training to site responders in the Katrina Recovery Zone. The WETP collaborated with Occupational Safety and Health Administration (OSHA), Federal Emergency Management Agency (FEMA), and the Department of Homeland Security (DHS) in developing and delivering this training in Louisiana, Alabama and Mississippi. As a result, the WETP, through cooperative agreements with its grantees, provided training to approximately 17,000 responders on at least 17 different topics for a total of 78,000 contact hours. Future training activities will focus on preparing federally deployed response workers to enter highly contaminated locations and engage in site assessments, debris removal, demolition and quality assurance activities. Safety and health training activities by the WETP and its awardees also target private sector, small businesses, and local and state officials who become involved in the cleanup process.

- **Minority Worker Training Program (MWTP)** - focuses on delivering intensive, comprehensive training to disadvantaged urban youth in order to prepare them for employment in the construction and environmental cleanup fields. This year, MWTP graduated 334 students while achieving a 68% placement rate. Since its inception, the program has graduated 3,500 students while maintaining a 67% placement rate. (In addition, related to this program, the WETP administers an EPA-funded Brownfields MWTP.)

New Opportunities

The WETP is actively developing pre-deployment strategies and training materials on two issues of national concern. First, the program provided supplementary funds to four current grantees to develop avian influenza training materials and deliver prototype awareness training to several selected audiences. In case of such a national disaster, this preparatory work will lay the foundation for an expedited response. Second, in partnership with the Department of Energy's Hazardous Material Management and Emergency Response (HAMMER) Training Facility in Hanford, Washington, the WETP, its grantees, and its National Clearinghouse for Worker Safety and Health Training are developing training materials to respond to contamination caused by a radiological dispersion device (RDD or "dirty bomb"). These two initiatives show the flexibility the WETP has developed in meeting the challenges of this dangerous and uncertain period in our nation's history.

Protecting Mold Remediation Workers

Background: The control of mold has long been an important public health issue. After hurricanes Katrina, Rita, and Wilma, the control of mold and the health and safety of workers involved in mold remediation became a critical recovery issue. Fortunately, prior to these events, the WETP had set out to determine, through an evidence-based process, the appropriate criteria for training mold remediation workers. The WETP engaged in this process not only to protect the health of workers and the public, but also to provide employers with a set of guidelines that they could use to evaluate the training programs they were considering for their employees.

Advances: The WETP conducted two national technical workshops. Over sixty technical experts, representing governmental agencies, industrial hygiene firms, abatement contractors, labor unions, universities, and trade associations, attended each workshop. The first, Mold Worker Protection Training Workshop was held January 27-28, 2004 in New York City. This workshop developed draft, experience-based guidelines for the health and safety training of mold hazard assessors, mold remediation workers, and workers who are exposed to mold in the course of maintaining building systems. The second workshop, Mold-related Health Effects: Clinical, Remediation Worker Protection, and Biomedical Research Issues, was held on June 28-29, 2004 in Washington, D.C. Participants reviewed and refined the draft guidelines developed at the New York meeting. Their comments and refinements were then incorporated into final draft guidelines.

The need for these training guidelines grew out of an increase in the population of mold exposed workers and the absence of federal regulations or generally accepted professional guidance on appropriate training to protect these workers from mold exposures. Workshop deliberations benefited from the outcomes of an earlier companion meeting on Clinical Aspects of Mold Exposure held at the Johns Hopkins University Bloomberg School of Public Health. At this workshop an expert panel discussed the evaluation, diagnosis, treatment and management of mold-related health problems. The

panel's findings were critical in providing science and evidence-based approaches for developing guideline criteria.

Implications: The national technical workshop approach developed and refined by the WETP provided the underlying framework for these workshops. The outcome of the workshops was published as minimum-training criteria in May, 2005 as the hurricane season began. Since that time, these criteria have been utilized by governmental agencies, trade organizations, labor unions, professional associations, volunteer organizations, and the general public. One major example was their utilization by the National Aeronautics and Space Administration (NASA) health and safety officers in undertaking mold remediation work at the Stennis Space Center and Michoud Assembly Facility in Louisiana, both damaged by Hurricane Katrina. A proactive approach, such as this, to providing timely health and safety guidance materials will continue to be a hallmark of the WETP.

Sources: The guidelines can be found at <http://www.wetp.org/wetp/index.cfm?Current=327>

Advances

In 2006, the WETP continued efforts to provide trained workers in support of the cleanup of New Orleans and other Gulf Coast areas. A few examples of the support the program provided are set forth below.

- During October 2005, under the Worker Safety and Health Annex of the National Response Plan, the Federal Emergency Management Agency (FEMA) and DHS formally activated the WETP to provide on-site safety training. The mission assignment was to provide needed safety and health training to site responders in the Katrina Recovery Zone. The WETP collaborated with the Occupational Safety and Health Administration (OSHA), FEMA and DHS to develop and deliver training and education programs for reducing and eliminating hazards for disaster site workers and skilled support personnel in response to Hurricane Katrina in Louisiana, Alabama, and Mississippi. The WETP and its grantees developed disaster-specific course materials to train trainers and deliver training to target populations in the Katrina response. The health and training needs of federal responders and contractors on the front lines were immediately developed, coordinated, and disseminated in manner that allowed responders to maintain their recovery activity tempo while improving their own safety. The mission assignment formally ended August 31, 2006; however, a number of WETP awardees continue to provide training on the Gulf coast.
- As reported last year, EPA provided \$800,000 to the WETP for use to supplement the Brownfields MWTP grants for training Gulf coast residents affected by Hurricanes Katrina and Rita. Over the past year, WETP grantees, OAI, Inc., Center to Protect Workers Rights, and Dillard University Deep South Center for Environmental Justice, used these funds to provide training in New Orleans, Louisiana, and Texas in the areas of asbestos abatement, mold remediation, basic construction skills, and basic

construction safety. In New Orleans, the funds were used for the recently created hurricane-damage remediation of small businesses.

- Cooperation among WETP grantees is a hallmark of the program and includes sharing resources and expertise. An outstanding example of this was the "Safe Way Back Home" project conducted by Dillard University Deep South Center for Environmental Justice and the United Steelworkers of America who provided safety and health training for residents and workers striving to rebuild an East New Orleans neighborhood. The project included neighborhood soil sampling and site characterization leading to the removal of contaminated soil and the replanting of turf grass. As a grassroots effort, it showed what could be achieved by local citizens and how limited training funds could be leveraged into an important rebuilding effort

More examples and details of the WETP Katrina training activities, which were a part of the overall NIEHS Katrina response, can be viewed at the following website:
<http://www-apps.niehs.nih.gov/katrina/>.

Other Areas of Interest

The WETP continues its support for small businesses through its innovative SBIR e-learning for worker safety and health training program. Since 2002, it has provided over \$2,000,000 in funding to develop electronic products that assist in the training of hazardous materials workers and emergency responders. Recently, the program and MetaMedia, Inc. were jointly honored with a Telly Award for the instructional DVD, "Responding to HAZMAT Incidents," which explores the process of analyzing, planning, implementation and evaluation that fire fighters and other first responders must follow when dealing with hazardous materials. The Telly Awards are the premier international competition honoring achievements in television, film and video production.

In October 2006, the WETP provided supplemental funds to current WETP grantees to develop training modules and outreach information for the protection of potential high risk populations involved in emergency response and cleanup activities related to pandemic and avian influenza. To share information and resources, identify training populations and job task requirements, and set up mechanisms for coordination and exchange, the WETP held a workshop on November 2, 2006, attended by representatives from 18 organizations including the Animal and Plant Health Inspection Service, United States Department of Agriculture (the lead agency under the National Response Plan for this scenario); National Institute for Occupational Safety and Health; North Carolina Department of Agriculture; New York State Bureau of Health Services; and a number of WETP awardees representing both academic and labor organizations. The labor participation is noteworthy because they represented, in sum, hundreds of thousands of workers in the health care, public service, and agricultural sectors of our economy. Many of these workers will be frontline participants if a response is required. The results of the meeting are being communicated to OSHA, EPA, and other members of the National Response Team Safety and Health Training Committee. The WETP expects this effort to result in a network of prepared trainers with the ability to conduct direct training in the field or to conduct instructor training for trainers from other responding organizations.

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Budget Authority by Activity
 (dollars in thousands)

ACTIVITY	FY 2007	FY 2008	Change
	Continuing Resolution Amount	Estimate Amount	
<u>Superfund:</u>			
Basic Research Program	\$50,629	\$50,198	-\$431
Worker Education and Training Program	28,479	28,236	-243
Total	79,108	78,434	-674

NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences
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 Superfund - Related Activities

Budget Authority by Object Class

OBJECT CLASSES	FY 2007 Continuing Resolution	FY 2008 Estimate	Increase or Decrease
Personnel Compensation:			
11.1 Full-Time Permanent	\$991,000	\$1,033,000	\$42,000
11.3 Other than Full-Time Permanent	28,000	29,000	1,000
11.5 Other Personnel Compensation	14,000	14,000	0
11.8 Special Personnel Services Payments			
11.9 Total Personnel Compensation	1,033,000	1,076,000	43,000
12.1 Personnel Benefits	215,000	224,000	9,000
13.0 Benefits for Former Personnel			
Subtotal, Pay Costs	1,248,000	1,300,000	52,000
21.0 Travel & Transportation of Persons	118,000	120,000	2,000
22.0 Transportation of Things			0
23.1 Rental Payments to GSA			
23.2 Rental Payments to Others			
23.3 Communications, Utilities & Miscellaneous Charges	1,000	1,000	0
24.0 Printing & Reproduction			0
25.1 Consulting Services	25,000	25,000	
25.2 Other Services	1,611,000	1,590,000	-21,000
25.3 Purchase of Goods & Services from Government Accounts	1,746,000	1,746,000	0
25.4 Operation & Maintenance of Facilities			
25.5 Research & Development Contracts			
25.6 Medical Care			
25.7 Operation & Maintenance of Equipment			0
25.8 Subsistence & Support of Persons			
25.0 Subtotal, Other Contractual Services	3,382,000	3,361,000	-21,000
26.0 Supplies & Materials	9,000	9,000	0
31.0 Equipment	13,000	13,000	0
32.0 Land and Structures			
33.0 Investments & Loans			
41.0 Grants, Subsidies & Contributions	74,337,000	73,630,000	-707,000
42.0 Insurance Claims & Indemnities			
43.0 Interest & Dividends			
44.0 Refunds			
Subtotal, Non-Pay Costs	77,860,000	77,134,000	-726,000
Total Budget Authority by Object	79,108,000	78,434,000	-674,000

Note: FTEs are included with the regular NIEHS appropriation.

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National Institute of Environmental Health Sciences
Department of Interior and Related Agencies Appropriations
Superfund - Related Activities

Authorizing Legislation

	CERCLA/ SARA	U.S. Code Citation	2007 Amount Authorized	2007 Continuing Resolution	2008 Amount Authorized	2008 Budget Estimate
Environmental Protection Agency's Hazardous Substance Superfund	CERCLA Section 311 (a)	42§9660 Section 9660(a)	Indefinite	\$50,629,000	Indefinite	\$50,198,000
	SARA Section 126 (g)	42§9660 Section 9660a	Indefinite			
Total: Budget Authority					79,108,000	78,434,000